ABSTRACT

The charging voltage measuring device includes a measuring electrode for forming an electrostatic capacity Cs with a substrate disposed on a substrate holding unit, a measuring capacitor, which has an electrostatic capacity Cm, being connected between the measuring electrode and a ground potential portion, and, a voltage measuring unit for measuring a measuring voltage Vm across the measuring capacitor, and a calculating unit. The calculating unit 22 calculates the charging voltage Vs on the surface of the substrate at time t1 in accordance with the following numerical expression on the basis of the measuring voltage Vm(t1) at time t1, an inverse K of a voltage dividing ratio and a resistance value Rm of a resistor disposed in parallel to the measuring capacitor 18, when the measurement time is t1.

$$Vs = K[Vm(t1)+\{1/(Cm\cdot Rm)\}\int_0^{t1} Vm(t)\,dt]$$

where $K = (Cs+Cm)/Cs$ or $K = Cm/Cs$ (if $Cm>>Cs$)